AMENDMENTS TO THE CLAIMS

The status of the claims as follows:

1. (Currently amended) A method for generation of hydrogen gas, the method comprising:

contacting a hydrocarbon fuel with iodine to provide a mixture thereof; and

heating the mixture at increased pressure thereby generating hydrogen gas.

2. (Original) The method of claim 1, wherein the hydrocarbon fuel is a cycloalkane or an aryl compound, or mixtures thereof.

3. (Original) The method of claim 2, wherein the hydrocarbon is a cycloalkane compound.

4. (Original) The method of claim 3, wherein the cycloalkane is cyclohexane.

5. (Original) The method of claim 2, wherein the hydrocarbon is an aryl compound.

6. (Original) The method of claim 5, wherein aryl compound is benzene.

7. (Original) The method of claim 2, wherein the hydrocarbon is a mixture of a cyclohexane and an aryl compound selected from the group consisting of benzene and toluene.

8. (Original) The method of claim 1, wherein the hydrocarbon fuel and iodine are in a ratio of about 1:0.001 to about 1:2 moles/moles.

9. (Original) The method of claim 8, wherein the ratio is about 1:0.01 to about 1:0.25 moles/moles.

10. (Original) The method of claim 1, wherein the mixture is heated to a temperature of about 60˚C to about 500˚C.

11. (Currently amended) The method of claim 10, wherein the mixture is heated to a temperature ~~greater than~~ of about 80˚C to about 100˚C.

12. (Original) The method of claim 10, wherein the mixture is heated to a temperature greater than about 80˚C.

13. (Cancel) ~~The method of claim 1, further comprising exposing providing the mixture to increased pressure~~.

14. (Currently amended) The method of claim ~~13~~ 1, wherein the pressure is greater than about 1 atmosphere, and less than about 250 atmospheres.

15. (Original) The method of claim 14, wherein the pressure is greater than about 2 atmospheres.

16. (Currently amended) A method comprising the steps of:

providing in a reaction container a composition comprising a hydrocarbon fuel and iodine; and

causing the composition to react in the container at increased pressure to generate hydrogen gas.

17. (Original) The method of claim 16, further comprising recovering the hydrogen gas.

18. (Original) The method of claim 17, further comprising using the recovered hydrogen gas as a fuel.

19. (Currently amended) The method of claim 16, wherein the hydrocarbon fuel is selected from the group consisting of cyclohexane, ~~and~~ benzene, ~~or~~ and mixtures thereof.

20. (Original) The method of claim 19, wherein the hydrocarbon fuel is cyclohexane.

21. (Original) The method of claim 20, wherein the hydrocarbon fuel is benzene.

22. (Original) The method of claim 16, wherein the hydrocarbon fuel and iodine are in a ratio of about 1:0.001 to about 1:2 moles/moles.

23. (Original) The method of claim 22, wherein the ratio is about 1:0.01 to about 1:0.25 moles/moles.

24. (Original) The method of claim 23, wherein the ratio is about 1:0.05 to about 1:0.2 moles/moles.

25. (Currently amended) A fuel cell system comprising:

~~a~~ hydrogen gas ~~generator~~ generated by the method of claim 16; and

a fuel cell capable of generating electricity by making use of hydrogen gas as a fuel.

26. (Original) The fuel cell of claim 25, wherein the hydrogen gas is generated by an increase in temperature and /or an increase in pressure.

27. (Original) The fuel cell of claim 26, wherein the hydrogen gas is generated by an increase in temperature and an increase in pressure.

28. (Original) The fuel cell of claim 26, wherein the hydrogen gas is generated by first increasing the temperature and then increasing the pressure.

29. (Original) The fuel cell of claim 26, wherein the hydrogen gas is generated by first increasing the pressure and then increasing the temperature.

30. (Original) The fuel cell of claim 26, wherein the temperature is increased to about 80°C or higher.

31. (Original) The fuel cell of claim 26, wherein the pressure is increased to greater than about 2 atmospheres.

32. (Original) The fuel cell of claim 26, wherein the temperature is between about 80°C and 100°C, and the pressure is between about 2 atmospheres and 2.5 atmospheres.